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Adapting geospatial analysis method for audit

26.09.2022

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Presenters

Ingrīda has 20 years of experience as an IT auditor. For evaluating investments in the development of national broadband communications networks, we tried a new method of obtaining audit evidence – geospatial data analysis. Until now, we used large amounts of data analysis with IDEA software, but network analysis required new skills - spatial information analysis.

Valērijs has more than 20 years of experience in policy development, evaluation and implementation of policy planning processes. Previously worked in central institutions of the government in Latvia. Participated in the development and implementation of a system of performance indicators and for the last 7 years is with the State Audit Office, as the public policy analysist.

Audit topic

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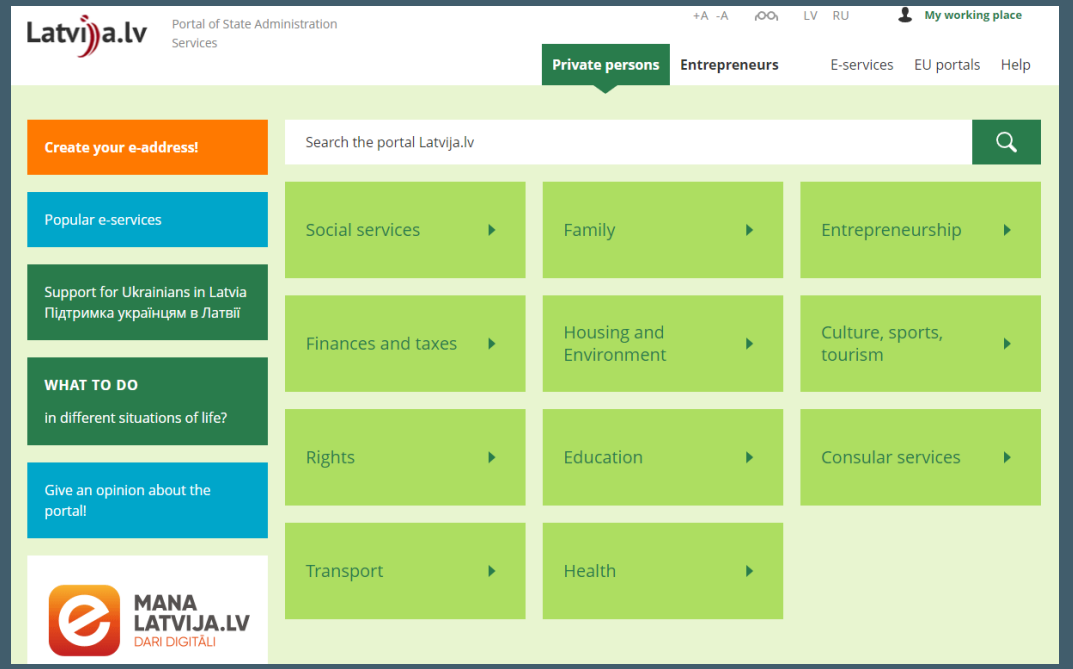
One key task of the government is to provide services to citizens.

Providing services in the form of e-services is cheaper and faster.

https://lrvk.gov.lv/en/audit-summaries/audit-summaries/does-the-public-investment-in-internet-access-reach-the-population



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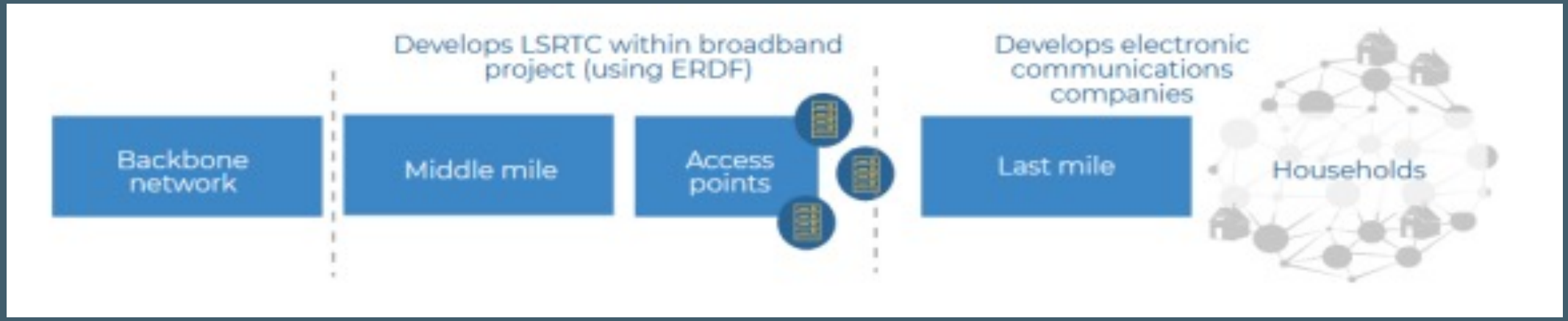
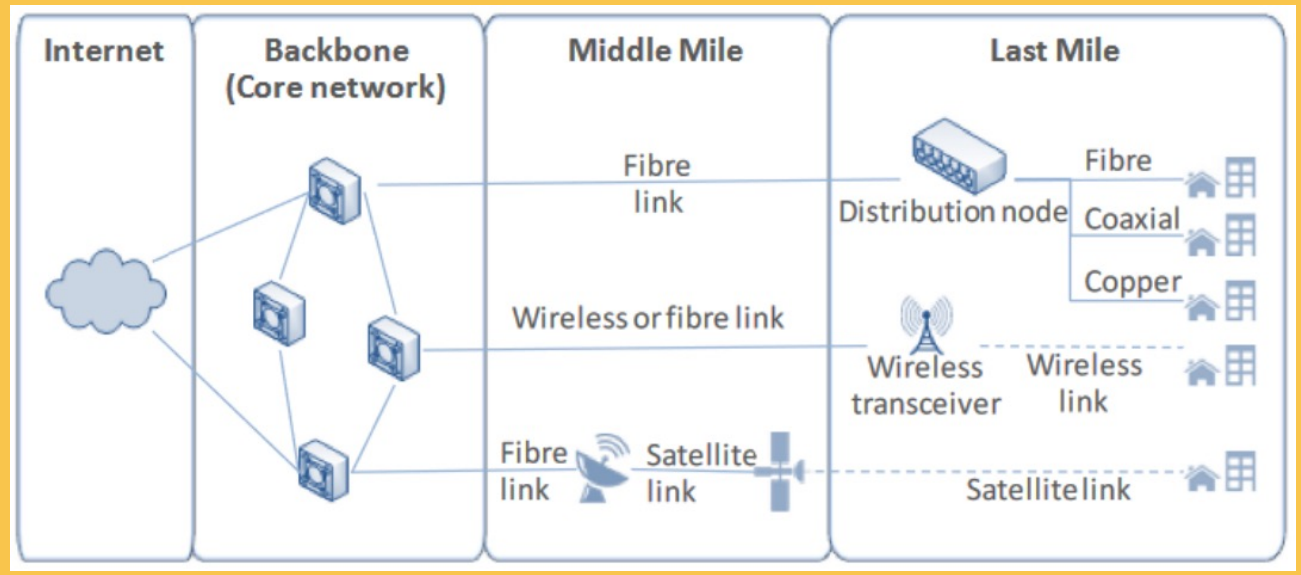
- One of the prerequisites for e-service is uninterrupted, fast internet recepcion (broadband) on both sides – institution and citizen
- EU declared goal is to provide internet at a speed >30 Mb/sec
- Since 2012, EUR 72 million has been invested in the construction of communication networks



Objective of the audit

Investments for the development a broadband infrastructure have been made efficiently if …

… investments are allocated for improving internet access in areas with market failure (sparsely populated) and a citizen receives the service



Audit approach and methods

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Evaluation documents, projects and access

Evaluate public policy planning documents

Evaluate investments and the implementation of the project

Evaluate access to broadband internet in sparsely populated areas (with market failure)

Audit methods

Information analysis

Interviews and surveys

Mapping and analysing geospatial and statistical data

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Developed Broadband Rental data from the project implementer

Survey of satisfaction with the internet speed and quality

Zoning of administrative areas from Project monitoring committee protocols

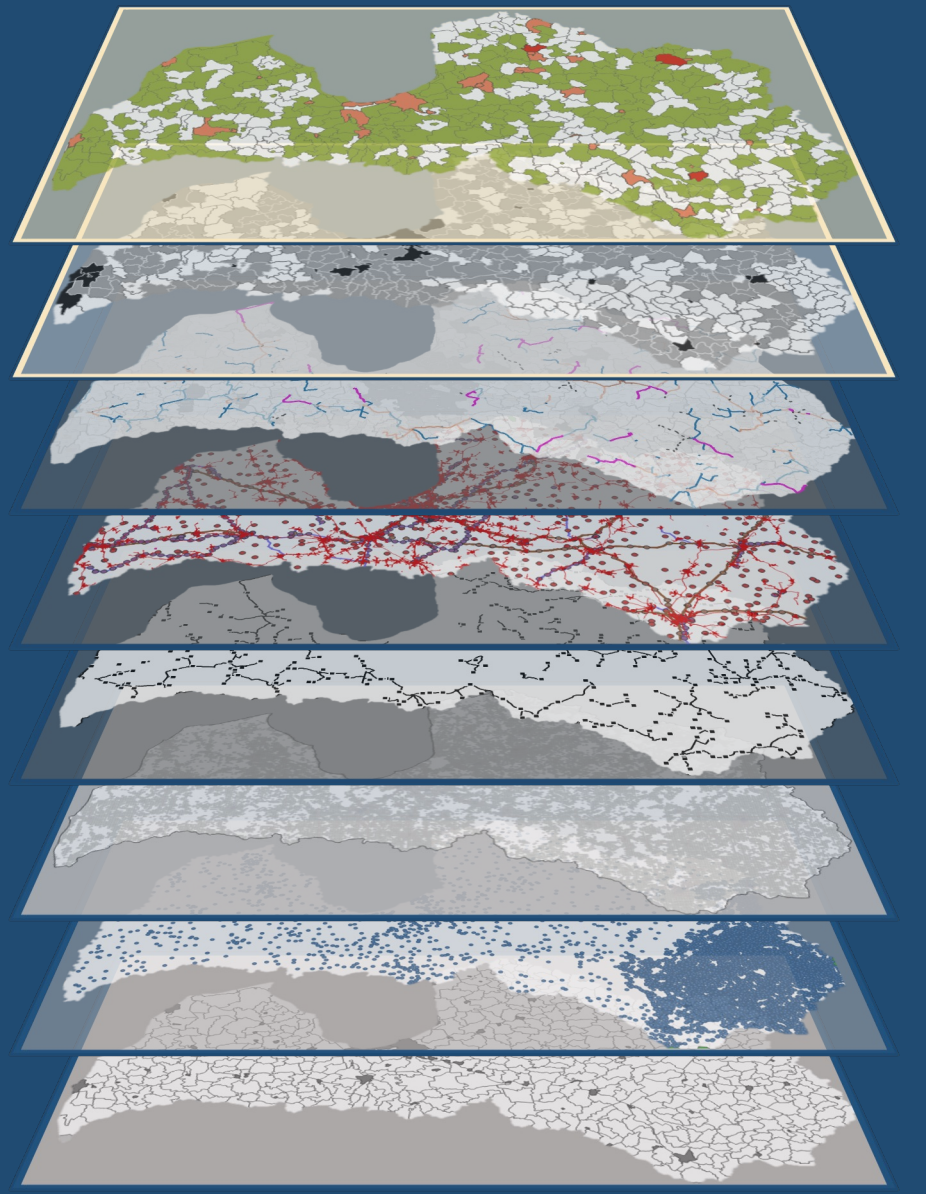
Data of the largest communication holders for the public and private network

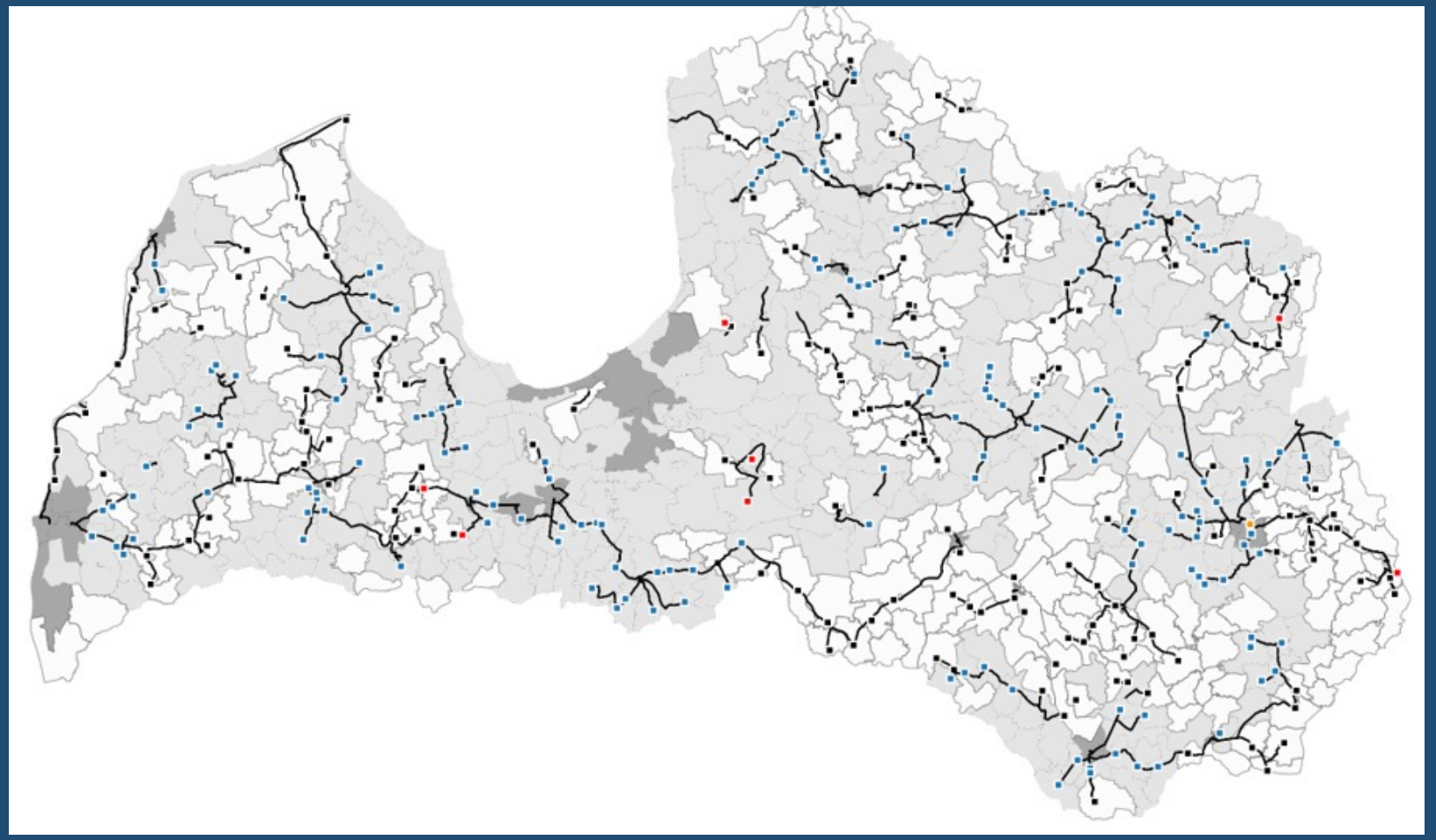
Broadband network and access points developed during the project

Central Statistics Bureau data about the population

Latvian Geospatial Information Agency data on villages

State Cadastre data on administrative territories





All audits findings together in a one layer with «red label»

Audit findings

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Findings on public policy

Public policy has to focus on the «middle mile», not the «last mile»

No unified national-level vision of investment

Information about intakes not accumulated in one place

No clear definition of the area which would meet with market failure

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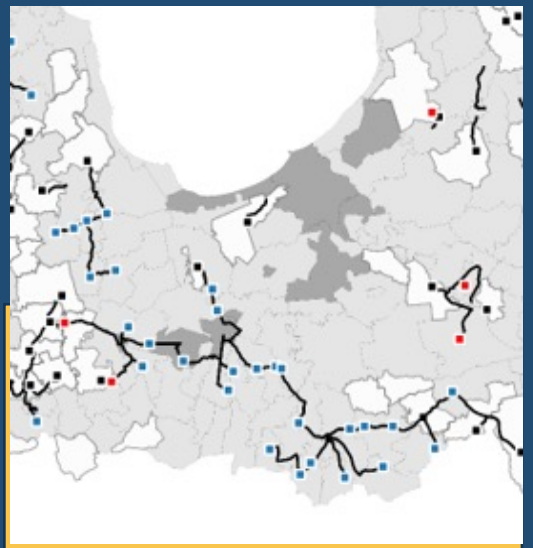
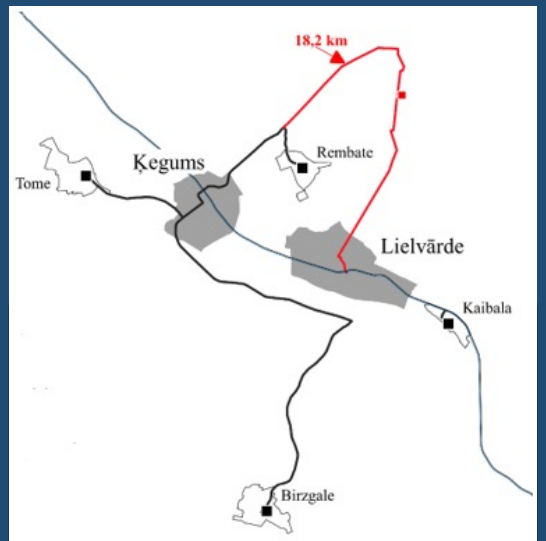
Findings about the implementation of the project

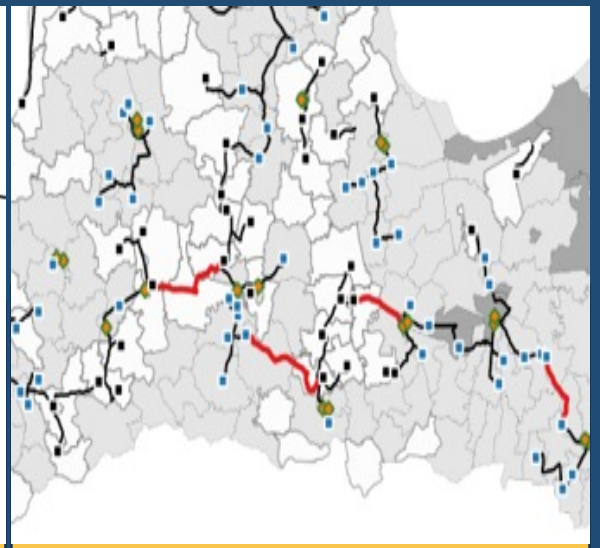


Extension of the network to areas that had not been approved by the monitoring committees



Network and access points have been constructed or planned at sites designated as «developer interest"

Network infrastructure constructed or planned in areas without «market failure»



Network of 170 km has been built, connecting sections of the "middle mile"

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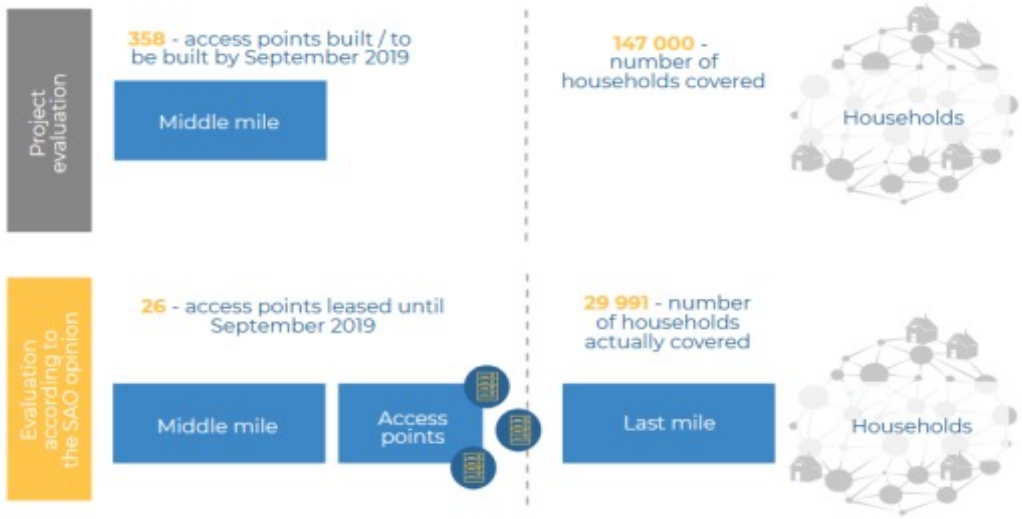
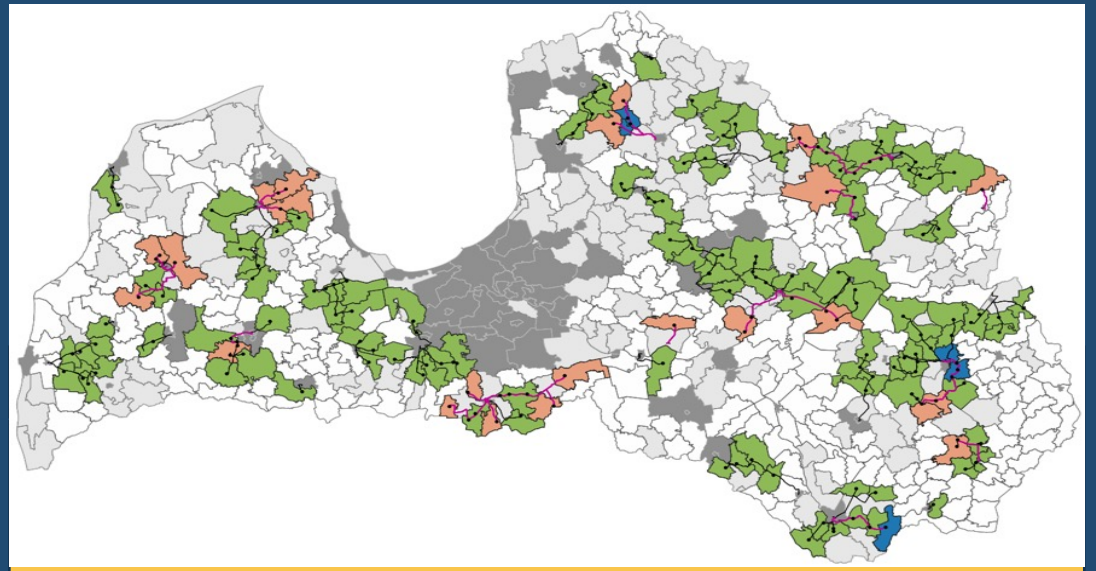
Findings on the area of market failure

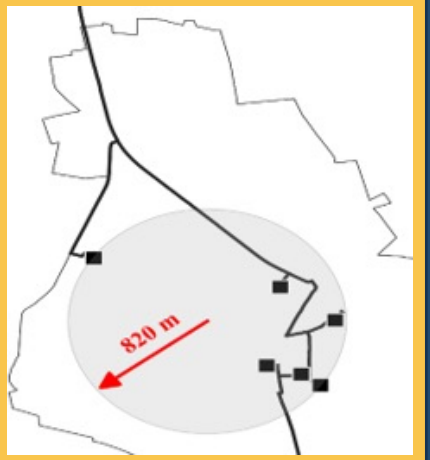




Adopted public policy expected to increase broadband to 147,000 households.

Auditors estimate broadband network could reach only 29 991 households.

For 61 parishes, the broadband only passes through them, but there are no access points for these communities to the network.



Audit information and challenges

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Main challenges in using only «universal methods»

What is the «big picture» or perspective?

Parallel infrastructure

What shall be the motivation of the business to develop services for the end user

Mapping areas with market failure

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Additional challenges

Providing data for audit purposes is the goodwill, not obligation, of operators.

Confidentiality of information on critical infrastructure.

No unified format (shape) to store geospatial data

How to put all the items on a single map, if so, it becomes information of national importance, strategically protected

Benefits of applying the additional audit method

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Spatial analysis methods allow us to show the following

Where existing infrastructure is duplicated and where investment should not be made but cooperation should be established with other infrastructure holders

Where a network is established but access points are missing to access the network and develop it to reach households

Where to more effectively construct an access point

Determine the number of households actually covered by broadband infrastructure

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Lessons learned to use additional methods

Communication with bussiness at charge is crucial	Need for experts	Ensure a level of information and data protection	But…

… it was worth it, because the responsible ministry, EU funds administration and the project holder understood a spatial data-driven vision of the problems and existing intervention, both in terms of planning and implementation.

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Thank for your attention!